

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A semiconductor device, comprising:

an insulating substrate having a surface on which a first an SiO₂ film is formed; and

a single-crystal silicon thin film substrate bonded with the insulating substrate on a partial region of the insulating substrate,

wherein the single-crystal silicon thin film substrate has a substantially uniform thickness and has a surface substantially free of damage,

the single-crystal silicon thin film has bonded thereto a second substrate ~~includes an SiO₂ film formed on the surface of the single crystal silicon substrate~~
~~bonded with the insulating substrate~~, and

the surface of the insulating substrate, where the first SiO₂ film is formed, is bonded with ~~the surface of the single-crystal silicon thin film substrate[.,]~~, where the second SiO₂ film is formed.

Claim 2 (Currently Amended): The semiconductor device as defined in claim 1, wherein, in different regions on the insulating substrate, the [[a]] single-crystal silicon thin film and a non-single-crystal silicon thin film are provided.

Claim 3 (Currently Amended): The semiconductor device as defined in claim 1, wherein the single-crystal silicon thin film has substrate further includes a single crystal silicon thin film having a thickness of not more than about 70nm.

Claim 4 (Currently Amended): The semiconductor device as defined in claim 1, wherein the single-crystal silicon thin film has substrate further includes a single crystal silicon thin film having a thickness of not more than about 20nm.

Claim 5 (Previously Presented): The semiconductor device as defined in claim 2, wherein the non-single-crystal silicon thin film comprises polycrystalline silicon.

Claim 6 (Withdrawn): The semiconductor device as defined in claim 2, wherein the non-single-crystal silicon thin film comprises continuous grain silicon.

Claim 7 (Withdrawn): The semiconductor device as defined in claim 2, wherein the non-single-crystal silicon thin film comprises amorphous silicon.

Claim 8 (Withdrawn): The semiconductor device as defined in claim 7, wherein a non-single crystal silicon thin-film transistor, which includes a gate insulating film made up of at least one insulating film including silicon nitride, is formed using the amorphous silicon thin film.

Claim 9 (Currently Amended): The semiconductor device as defined in claim 1, wherein ~~the single crystal silicon substrate further includes a single crystal silicon thin film and a~~ transistor formed using the single-crystal silicon thin film is arranged such that, from an

insulating substrate side, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order.

Claim 10 (Previously Presented): The semiconductor device as defined in claim 9, wherein at least a part of the transistor formed using the single-crystal silicon thin film includes an interlayer insulating film and metal interconnects provided further on the single-crystal silicon thin film.

Claim 11 (Withdrawn): The semiconductor device as defined in claim 9, wherein the transistor formed using the single-crystal silicon thin film is arranged such that, from an insulating substrate side, an interlayer insulating film, a metal interconnects layer, an interlayer insulating film, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order, and in at least a part of the transistor, an interlayer insulating film and metal interconnects are further provided on the single-crystal silicon thin film.

Claim 12 (Previously Presented): The semiconductor device as defined in claim 1, wherein the insulating substrate comprises a high strain point glass including an alkaline-earth alumino-borosilicate glass.

Claim 13 (Previously Presented): The semiconductor device as defined in claim 1, wherein the insulating substrate comprises any one of a barium borosilicate glass, a barium alumino-borosilicate glass, an alkaline-earth alumino-borosilicate glass, a borosilicate glass, an alkaline-earth-zinc-lead-alumino-borosilicate glass, and an alkaline-earth-lead-alumino-borosilicate glass.

Claim 14 (Currently Amended): The semiconductor device as defined in claim 1, wherein a difference of linear expansion between the insulating substrate and the single-crystal silicon thin film substrate is about not more than 250ppm at temperatures in a range between substantially room temperature temperatures and 600°C.

Claim 15 (Previously Presented): The semiconductor device as defined in claim 1, wherein the insulating substrate comprises a high strain point glass whose strain point is not less than 500°C.

Claims 16 (Canceled).

Claim 17 (Withdrawn): A semiconductor device, comprising:
an insulating substrate having a surface on which an SiO₂ film is formed; and
a single-crystal silicon substrate bonded with the insulating substrate,
wherein, the single-crystal silicon substrate includes a porous silicon layer and a single-crystal silicon thin film formed on the porous silicon layer and has a surface which is on a single-crystal silicon thin film side with respect to the porous silicon layer and on which an SiO₂ film is formed,
the surface of the insulating substrate, where the SiO₂ film is formed, is bonded with the surface of the single-crystal silicon substrate, where the SiO₂ film is formed, and
a part of the single-crystal silicon substrate is separated at the porous silicon layer, and the porous silicon layer is removed from a remaining part of the single-crystal silicon substrate, the remaining part still being on the insulating substrate after the part is separated.

Claim 18 (Withdrawn): The semiconductor device as defined in claim 17, wherein, in different regions on the insulating substrate, the single-crystal silicon thin film and a non-single-crystal silicon thin film are formed.

Claim 19 (Withdrawn): The semiconductor device as defined in claim 17, wherein the single-crystal silicon thin film is not more than about 70nm thick.

Claim 20 (Withdrawn): The semiconductor device as defined in claim 17, wherein the single-crystal silicon thin film is not more than about 20nm thick.

Claim 21 (Withdrawn): The semiconductor device as defined in claim 18, wherein the non-single-crystal silicon thin film comprises polycrystalline silicon.

Claim 22 (Withdrawn): The semiconductor device as defined in claim 18, wherein the non-single-crystal silicon thin film comprises continuous grain silicon.

Claim 23 (Withdrawn): The semiconductor device as defined in claim 18, wherein the non-single-crystal silicon thin film comprises amorphous silicon.

Claim 24 (Withdrawn): The semiconductor device as defined in claim 23, wherein a non-single crystal silicon thin-film transistor, which includes a gate insulating film comprising at least one insulating film including silicon nitride, is formed using the amorphous silicon thin film.

Claim 25 (Withdrawn): The semiconductor device as defined in claim 17, wherein a transistor formed using the single-crystal silicon thin film is arranged such that, from an insulating substrate side, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order.

Claim 26 (Withdrawn): The semiconductor device as defined in claim 25, wherein at least a part of the transistor formed using the single-crystal silicon thin film includes an interlayer insulating film and a metal interconnects layer provided further on the single-crystal silicon thin film.

Claim 27 (Withdrawn): The semiconductor device as defined in claim 17, wherein the transistor formed using the single-crystal silicon thin film is arranged such that, from an insulating substrate side, an interlayer insulating film, a metal interconnects layer, an interlayer insulating film, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order, and in at least a part of the transistor, an interlayer insulating film and metal interconnects are further provided on the single-crystal silicon thin film.

Claim 28 (Withdrawn): The semiconductor device as defined in claim 17, wherein the insulating substrate comprises a high strain point glass including an alkaline-earth alumino-borosilicate glass.

Claim 29 (Withdrawn): The semiconductor device as defined in claim 17, wherein the insulating substrate comprises any one of a barium borosilicate glass, a barium alumino-borosilicate glass, an alkaline-earth alumino-borosilicate glass, a borosilicate glass, an alkaline-earth-zinc-lead-alumino-borosilicate glass, and an alkaline-earth-lead-alumino-borosilicate glass.

Claim 30 (Withdrawn): The semiconductor device as defined in claim 17, wherein a difference of linear expansion between the insulating substrate and the single-crystal silicon substrate is about not more than 250ppm at temperatures in a range between substantially room temperatures and 600°C.

Claim 31 (Withdrawn): The semiconductor device as defined in claim 17, wherein the insulating substrate comprises a high strain point glass whose strain point is not less than 500°C.

Claim 32 (Withdrawn): The semiconductor device as defined in claim 17, wherein on a substantially entire surface of the insulating substrate, the single-crystal silicon thin film is formed.

Claims 33-42 (Canceled).

Claim 43 (Withdrawn): A semiconductor structure comprising:
an insulating substrate having a surface on which a first SiO₂ film is formed; and
a single-crystal silicon substrate bonded with the insulating substrate, wherein

the single-crystal silicon substrate includes a buried oxide layer, a hydrogen ion implantation section in which a distribution of hydrogen ions peaks in the buried oxide layer, and a single-crystal silicon thin film formed on the buried oxide layer, the single-crystal silicon substrate having a surface which is on a single-crystal silicon thin film side with respect to the buried oxide layer and on which a second SiO₂ film is formed, and

the surface of the insulating substrate on which the first SiO₂ film is formed is bonded with the surface of the single-crystal silicon substrate on which the second SiO₂ film is formed.

Claim 44 (Withdrawn): The semiconductor structure as defined in claim 43, wherein the single-crystal silicon substrate is bonded to only a portion of the surface of the insulating substrate on which the first SiO₂ film is formed.

Claim 45 (Withdrawn): The semiconductor structure as defined in claim 43, wherein the single-crystal silicon thin film has a thickness of not more than about 70nm.

Claim 46 (Withdrawn): The semiconductor structure as defined in claim 43, wherein the single-crystal silicon thin film has a thickness of not more than about 20nm.

Claim 47 (Withdrawn): The semiconductor structure as defined in claim 43, wherein the insulating substrate comprises a high strain point glass including an alkaline-earth alumino-borosilicate glass.

Claim 48 (Withdrawn): The semiconductor structure as defined in claim 43, wherein the insulating substrate comprises any one of a barium borosilicate glass, a barium alumino-borosilicate glass, an alkaline-earth alumino-borosilicate glass, a borosilicate glass, an alkaline-earth-zinc-lead-alumino-borosilicate glass, and an alkaline-earth-lead-alumino-borosilicate glass.

Claim 49 (Withdrawn): The semiconductor structure as defined in claim 43, wherein a difference of linear expansion between the insulating substrate and the single-crystal

silicon substrate is about not more than 250ppm at temperatures in a range between substantially room temperatures and 600°C.

Claim 50 (Withdrawn): The semiconductor structure as defined in claim 43, wherein the insulating substrate comprises a high strain point glass whose strain point is not less than 500°C.

Claim 51 (Currently Amended): A semiconductor device, comprising:
an insulating substrate having a surface on which a first SiO₂ film is formed; and
a single-crystal silicon thin film substrate bonded to the insulating substrate, the single-crystal silicon thin film substrate having a substantially uniform thickness and a substantially damage-free surface, wherein

~~the single-crystal silicon thin film has bonded thereto substrate includes a single-crystal silicon thin film and a second SiO₂ film formed on a surface thereof,~~

~~the surface of the insulating substrate on which the first SiO₂ film is formed is bonded with the surface of the single crystal silicon substrate on which the second SiO₂ film thereby bonding the single-crystal silicon thin film to the insulating substrate is formed, and~~

~~the bonded single-crystal silicon thin film substrate is disposed on only part of the insulating surface of the single crystal silicon substrate on which the first second SiO₂ film is formed.~~

Claim 52 (Currently Amended): The semiconductor device as defined in claim 51, further comprising:

transistor elements formed from provided on the single-crystal silicon thin film substrate.

Claim 53 (Previously Presented): The semiconductor device as defined in claim 52, wherein the transistor elements are arranged such that, from an insulating substrate side, a gate electrode, a gate insulating film, and the single-crystal silicon thin film are formed in this order.